I Claim:

1. A method for producing platform molecules comprising:

providing a first phenylene ring comprising a first functional group at a para-position to a second functional group;

providing a second phenylene ring comprising a third functional group at a para- position to a fourth functional group;

providing a third phenylene ring comprising a desired substituent and comprising a first functionality at a para- position to a second functionality; and

reacting said first functional group with said first functionality, producing at least a first ester bond between said first phenylene ring and said third phenylene ring; and

reacting said third functional group with said third functionality, producing at least a second ester bond between said second phenylene ring and said third phenylene ring, thereby producing platform molecules comprising a first terminal functionality at position para- to said first intervening ester bond and a second terminal functionality at a position para- to said second intervening ester bond, wherein at least one functionality selected from the group consisting of said first terminal functionality and said second terminal functionality is other than a polymerizable group;

wherein, when both said first terminal functionality and said second functionality are polymerizable groups, said desired substituent provides sufficient steric hindrance to achieve a nematic state at room

temperature while suppressing crystallinity at room temperature.

2. The method of claim 1 wherein both said first terminal functionality and said second terminal functionality are other than polymerizable groups.

3. A method for producing platform molecules comprising:

providing a first phenylene ring comprising a first functional group at a para-position to a second functional group;

providing a second phenylene ring comprising third functional group at a para-position to a fourth functional group;

providing a third phenylene ring comprising a desired substituent and comprising a first hydroxyl group at a para- position to a second hydroxyl group; and

reacting said first hydroxyl group with said first functional group, producing at least a first ester bond between said first phenylene ring and said third phenylene ring; and

reacting said second hydroxyl group with said third functional group, producing at least a second ester bond between said second phenylene ring and said third phenylene ring, thereby producing platform molecules comprising a first terminal functionality at position para- to said first ester bond and a second terminal functionality at a position para- to said second ester bond, wherein at least one functionality selected from the group consisting of said first terminal functionality and said second terminal functionality is other than a polymerizable group;

wherein, if one of said first terminal functionality or said second terminal

functionality is a polymerizable group;

wherein, if both said first terminal functionality and said second functionality are polymerizable groups, said desired substituent provides sufficient steric hindrance to achieve a nematic state at room temperature while suppressing crystallinity at room temperature.

4. The method of claim 3 wherein both said first terminal functionality and said second terminal functionality are other than polymerizable groups.

5. The method of claim 1 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

6. The method of claim 2 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

7. The method of claim 3 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

8. The method of claim 4 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

9. The method of claim 1 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

10. The method of claim 1 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to about 4 carbon atoms and phenyl groups.

11. The method of claim 1 wherein said desired substituent is selected from the group consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups, and phenyl groups.

12. The method of claim 2 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

13. The method of claim 2 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to about 4 carbon atoms and phenyl groups.

14. The method of claim 2 wherein said desired substituent is selected from the group consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups, and phenyl groups.

15. The method of claim 3 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

16. The method of claim 3 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to about 4 carbon atoms and phenyl groups.

17. The method of claim 3 wherein said desired substituent is selected from the group consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups, and phenyl groups.

18. The method of claim 1 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

19. The method of claim 2 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

20. The method of claim 3 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

21. The method of claim 4 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

22. The method of claim 7 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

23. The method of claim 16 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

24. The method of claim 17 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

25. The method of claim 18 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

26. The method of claim 1 further comprising

forming a mixture comprising said platform molecules and at least a fourth phenylene ring comprising a fifth functional group at a position para- to a sixth functional group; and

exposing said mixture to conditions effective to form at least a third ester bond between said fourth phenylene ring and a ring selected from the group

consisting of said first phenylene ring and said second phenylene ring, thereby producing elongated platform molecules comprising at least four phenylene rings and comprising a new terminal functionality at a position para- to said third ester bond.

27. A method for producing polymerizable mesogens comprising:

forming a mixture comprising

first phenylene rings comprising a first functional group at a position para-to a second functional group;

second phenylene rings comprising a third functional group at a position para- to a fourth functional group; and

third phenylene rings comprising a desired substituent and comprising a first functionality at a position para- to a second functionality; and

exposing said mixture to conditions effective to react said first functional group and said first functionality, forming a first ester bond between said first phenylene ring and said third phenylene ring, and to react said second functional group and said third functionality forming a second ester bond between said second phenylene ring and said third phenylene ring, thereby producing platform mesogens comprising a first terminal functionality at a position para- to said first ester bond and a second terminal functionality at a position para- to said second ester bond, wherein at least one functionality selected from the group consisting of said first terminal functionality and said second terminal functionality is other than a polymerizable group ; and

reacting at least one of said first and second terminal functionalities with a polymerizable group, producing polymerizable mesogens;

wherein, when both said first terminal functionality and said second functionality are polymerizable groups, said desired substituent provides sufficient steric hindrance to achieve a nematic state at room temperature while suppressing crystallinity at room temperature.

28. A method for producing polymerizable mesogens comprising:

forming a mixture comprising

first phenylene rings comprising a first functional group at a position para- to a second functional group;

second phenylene rings comprising a third functional group at a position para- to a fourth functional group; and

third phenylene rings comprising a desired substituent and comprising a first hydroxyl group at a position para- to a second hydroxyl group; and

exposing said mixture to conditions effective to react said first hydroxyl group and said first functional group, forming a first ester bond between said first phenylene ring and said third phenylene ring, and to react said second hydroxyl group and said third functional group forming a second ester bond between said second phenylene ring and said third phenylene ring, producing platform mesogens comprising a first terminal functionality at a position para- to said first intervening ester bond and a second terminal functionality at a position para- to said second ester bond, wherein at least one functionality selected from the

group consisting of said first terminal functionality and said second terminal functionality is other than a polymerizable group; and

reacting at least one of said first and second terminal functionalities with a polymerizable group, producing polymerizable mesogens;

wherein, when both said first terminal functionality and said second functionality are polymerizable groups, said desired substituent provides sufficient steric hindrance to achieve a nematic state at room temperature while suppressing crystallinity at room temperature.

29. The method of claim 27 wherein both said first terminal functionality and said second functionality are other than polymerizable groups.

30. The method of claim 28 wherein both said first terminal functionality and said second functionality are other than polymerizable groups.

31. The method of claim 27 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

32. The method of claim 28 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

33. The method of claim 29 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

34. The method of claim 30 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

35. The method of claim 27 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

36. The method of claim 27 wherein said desired substituent is selected

from the group consisting of alkyl groups having from about 1 to about 4 carbon atoms and phenyl groups.

37. The method of claim 27 wherein said desired substituent is selected from the group consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups, and phenyl groups.

38. The method of claim 28 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

39. The method of claim 28 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to about 4 carbon atoms and phenyl groups.

40. The method of claim 28 wherein said desired substituent is selected from the group consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups, and phenyl groups.

41. The method of claim 29 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

42. The method of claim 29 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to about 4 carbon atoms and phenyl groups.

43. The method of claim 29 wherein said desired substituent is selected from the group consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups, and phenyl groups.

44. The method of claim 30 wherein said desired substituent is selected

from the group consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

45. The method of claim 30 wherein said desired substituent is selected from the group consisting of alkyl groups having from about 1 to about 4 carbon atoms and phenyl groups.

46. The method of claim 30 wherein said desired substituent is selected from the group consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups, and phenyl groups.

47. The method of claim 27 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

48. The method of claim 28 wherein said second functional group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

49. The method of claim 29 wherein said second reactive group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

50. The method of claim 30 wherein said second reactive group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

51. The method of claim 31 wherein said second reactive group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

52. The method of claim 32 wherein said second reactive group and said

fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

53. The method of claim 35 wherein said second reactive group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

54. The method of claim 40 wherein said second reactive group and said fourth functional group are selected from the group consisting of carboxyl groups and reactive derivatives of carboxyl groups.

55. The method of claim 27 further comprising:

forming a mixture comprising said platform molecules and at least fourth phenylene rings comprising a fifth functional group at a para- position to a sixth functional group; and

exposing said mixture to conditions effective to form at least a third ester bond between said fourth phenylene ring and a ring selected from the group consisting of said first phenylene ring and said second phenylene ring, thereby producing elongated platform molecules comprising at least four phenylene rings and comprising a new terminal functionality at a position para- to said third ester bond.

56. The method of claim 27 wherein said polymerizable group comprises a polymerizable unsaturated carbon-carbon bond.

57. The method of claim 27 further comprising

reacting a first terminal functionality of a first platform molecule with a first end of a bridging agent selected from the group consisting of an α,ω-carboxylic acid and an oligodialkylsiloxane comprising an alkyl group

having from about 4 to about 12 carbon atoms; and

reacting a first terminal functionality of a second platform molecule with a second, opposed end of said bridging agent.

58. A method comprising:

providing hydroquinone comprising a desired substituent and comprising a first hydroxyl group at a para- position to a second hydroxyl group;

exposing said hydroquinone to 1-(4-chloroalkyloxy) benzoyl chloride under conditions effective to form a first ester linkage between said first hydroxyl group and a first benzoyl group of a first 1-(4-chloroalkyloxy) benzoyl chloride molecule and to form a second ester linkage between said second hydroxyl group and a second benzoyl group of a second 1-(4-chloroalkyloxy) benzoyl chloride molecule, thereby forming a bis-chloro compound comprising bis chlorogroups and a central phenylene ring bearing said desired substituent;

wherein, when said bis-chloro groups are converted to polymerizable groups, said desired substituent provides sufficient steric hindrance to achieve a nematic state at room temperature while suppressing crystallinity at room temperature.

59. The method of claim 58 wherein said desired substituent is selected from the group consisting of a methyl group and a t-butyl group.

60. The method of claim 58, wherein said 1-(4-chloroalkyloxy) benzoyl chloride is produced by:

forming a mixture comprising α, ω-substituted alkane comprising an α-hydroxyl group at a first end and an ω- hydroxyl group at an opposed

end, and 4-nitrobenzoic acid comprising a nitro- group and a carboxyl group at a position para- to said nitro- group;

exposing said mixture to conditions effective to form an ester linkage between said carboxyl group and an entity selected from the group consisting of said α- hydroxyl group and said ω- hydroxyl group, producing 4-(1-hydroxyalkyloxy)benzoic acid(1-hydroxyalkylester) and dimers thereof; and

hydrolyzing said dimers, producing 4-(1-hydroxyalkyloxy benzoic acid) comprising 1-hydroxy and a benzoic acid hydroxy moiety;

exposing said 4-(1-hydroxyaklyloxy)benzoic acid to a source of chlorine atoms effective to replace said 1-hydroxy and said benzoic acid hydroxy moiety, thereby producing said 1-(4-chloroalkyloxy) benzoyl chloride.

61. The method of claim 58 further comprising hydrolyzing said chlorine atoms from said bis chloro compound to produce platform molecules comprising at least one hydroxyalkyloxy terminal functionality.

62. The method of claim 59 further comprising hydrolyzing said chlorine atoms from said bis chloro compound to produce platform molecules comprising at least one hydroxyalkyloxy terminal functionality.

63. The method of claim 60 further comprising hydrolyzing said chlorine atoms from said bis chloro compound to produce a platform molecules comprising at least one hydroxyalkyloxy terminal functionality.

64. The method of claim 61 further comprising collecting said platform molecules.

65. The method of claim 62 further comprising collecting said platform molecules.

66. The method of claim 63 further comprising collecting said platform molecules.

67. The method of claim 61 further comprising reacting said hydroxyalkyloxy terminal functionality with a polymerizable group.

68. The method of claim 62 further comprising reacting said hydroxyalkyloxy terminal functionality with a polymerizable group.

69. The method of claim 63 further comprising reacting said hydroxyalkyloxy terminal functionality with a polymerizable group.

70. The method of claim 64 further comprising reacting said hydroxyalkyloxy terminal functionality with a polymerizable group.

71. The method of claim 65 further comprising reacting said hydroxyalkyloxy terminal functionality with a polymerizable group.

72. The method of claim 66 further comprising reacting said hydroxyalkyloxy terminal functionality with a polymerizable group.

73. The method of claim 61 further comprising

reacting a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

74. The method of claim 62 further comprising

reacting a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

75. The method of claim 63 further comprising

reacting a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

76. The method of claim 64 further comprising

reacting a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

77. The method of claim 1 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

78. The method of claim 2 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid;

and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

79. The method of claim 3 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

80. The method of claim 4 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

81. The method of claim 5 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid;

and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

82. The method of claim 8 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

83. The method of claim 8 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

84. The method of claim 9 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid;

and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

85. The method of claim 15 further comprising

reacting a moiety selected from the group consisting of a first hydroxyl group and a first hydroxyalkyloxy end group on a first platform molecule with an α- end of a bridging agent comprising an α,ω-carboxylic acid; and

reacting a moiety selected from the group consisting of a second hydroxyl moiety and a second hydroxyalkyloxy end group on a second platform molecule with a ω- end of said bridging agent.

86. The method of claim 17 further comprising

reacting said first terminal functionality on a first platform molecule with a first end of a bridging agent comprising an oligodialkylsiloxane comprising an alkyl group having from about 4 to about 12 carbon atoms; and,

reacting said first terminal functionality on a second platform molecule with a second, opposed end of said bridging agent.

87. A method for making platform molecules comprising reacting 4-alkoxy benzoyl chloride with a hydroquinone comprising a desired substituent (R^2) under first conditions effective to produce bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene comprising bis terminal alkoxy groups wherein, when both bis terminal alkoxy groups are converted to polymerizable groups, R^2 provides sufficient steric

hindrance to achieve a nematic state at room temperature while suppressing crystallinity at room temperature.

88. The method of claim 87 wherein said 4-alkoxy benzoyl chloride is 4-methoxy benzoyl chloride.

89. The method of claim 87 wherein said 1,4 [4-alkoxybenzoyloxy-R^2-phenylene is subjected to second conditions effective to cleave said bis terminal alkoxy groups, thereby producing a solution comprising diphenolic platform molecules comprising bis terminal hydroxyl groups.

90. The method of claim 88 wherein said 1,4 [4-alkoxybenzoyloxy-R^2-phenylene is subjected to second conditions effective to cleave said bis terminal alkoxy groups, thereby producing a solution comprising diphenolic platform molecules comprising bis terminal hydroxyl groups.

91. The method of claim 87 wherein said first conditions comprise a solution comprising a hydrogen chloride scavenging agent.

92. The method of claim 91 wherein said solution further comprises a trialkylamine.

93. The method of claim 88 wherein said first conditions comprise a solution comprising a hydrogen chloride scavenging agent.

94. The method of claim 93 wherein said solution further comprises a trialkylamine.

95. The method of claim 89 wherein said first conditions comprise a solution comprising a hydrogen chloride scavenging agent.

96. The method of claim 95 wherein said solution further comprises a trialkylamine.

97. The method of claim 90 wherein said first conditions comprise a solution comprising a hydrogen chloride scavenging agent.

98. The method of claim 97 wherein said solution further comprises a trialkylamine.

99. The method of claim 87 wherein R^2 is selected from the group consisting of methyl groups and t-butyl groups.

100. The method of claim 87 wherein

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene comprising bis terminal alkoxy groups is to be incorporated into a monomer, R^2 is selected from the group consisting of t-butyl groups, isopropyl groups, secondary butyl groups, methyl groups, and phenyl groups; and,

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene is to be incorporated into a dimer, R^2 is selected from the group consisting of bulky organic groups and groups having a bulk less than methyl groups.

101. The method of claim 88 wherein R^2 is selected from the group consisting of methyl groups and t-butyl groups.

102. The method of claim 88 wherein

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene comprising bis terminal alkoxy groups is to be incorporated into a monomer, R^2 is selected from the group consisting of t-butyl groups, isopropyl groups, secondary butyl groups, methyl groups, and phenyl groups; and,

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene is to be incorporated into a dimer, R^2 is selected from the group consisting of bulky organic groups and groups having a bulk less than methyl groups.

103. The method of claim 89 wherein R^2 is selected from the group consisting of a methyl group and a t-butyl group.

104. The method of claim 89 wherein

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene comprising bis terminal alkoxy groups is to be incorporated into a monomer, R^2 is selected from the group consisting of t-butyl groups, isopropyl groups, secondary butyl groups, methyl groups, and phenyl groups; and,

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene is to be incorporated into a dimer, R^2 is selected from the group consisting of bulky organic groups and groups having a bulk less than methyl groups.

105. The method of claim 90 wherein R^2 is selected from the group consisting of a methyl group and a t-butyl group.

106. The method of claim 90 wherein

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene comprising bis terminal alkoxy groups is to be incorporated into a monomer, R^2 is selected from the group consisting of t-butyl groups, isopropyl groups, secondary butyl groups, methyl groups, and phenyl groups; and,

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene is to be incorporated into a dimer, R^2 is selected from the group consisting of bulky organic groups and groups having a bulk less than methyl groups.

107. The method of claim 90 wherein said second conditions comprise exposing said bis terminal alkoxy groups to a mixture comprising a quantity of alkyl ether having from about 1 to about 8 carbon atoms and an amount of an aliphatic thiol effective to dissolve a concentration of aluminum chloride in a chlorinated solvent,

said exposing taking place at a temperature and for a time effective to selectively cleave said bis terminal alkoxy groups to produce complexes comprising said diphenolic platform molecules comprising intact aromatic ester bonds and to cause said complexes to precipitate out of said solution substantially as they are formed.

108. The method of claim 107 wherein said alkyl ethers have from about 1 to about 4 carbon atoms.

109. The method of claim 107 wherein said alkyl ether is methyl ether.

110. The method of claim 107 wherein said aliphatic thiol comprises an alkyl group having from about 1 to about 11 carbon atoms.

111. The method of claim 108 wherein said aliphatic thiol comprises an alkyl group having from about 1 to about 11 carbon atoms.

112. The method of claim 109 wherein said aliphatic thiol comprises an alkyl group having from about 1 to about 11 carbon atoms.

113. The method of claim 107 wherein said aliphatic thiol is ethane thiol.

114. The method of claim 108 wherein said aliphatic thiol is ethane thiol.

115. The method of claim 109 wherein said aliphatic thiol is ethane thiol.

116. The method of claim 107 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least one mole of thiol per mole of alkyl ether.

117. The method of claim 108 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least one mole of thiol per mole of alkyl ether.

118. The method of claim 109 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least one mole of thiol per mole of alkyl ether.

119. The method of claim 113 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least one mole of thiol per mole of alkyl ether.

120. The method of claim 116 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least one mole of thiol per mole of alkyl ether.

121. The method of claim 108 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least two moles of thiol per mole of alkyl ether.

122. The method of claim 109 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least two moles of thiol per mole of alkyl ether.

123. The method of claim 110 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least two moles of thiol per mole of alkyl ether.

124. The method of claim 113 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least two moles of thiol per mole of alkyl ether.

125. The method of claim 116 wherein said quantity of alkyl ether and said amount of aliphatic thiol is effective to produce at least two moles of thiol per mole of alkyl ether.

126. The method of claim 107 wherein said concentration of aluminum chloride produces a ratio of said aluminum chloride to said alkyl ether of 4:1 or more.

127. The method of claim 108 wherein said concentration of aluminum chloride produces a ratio of said aluminum chloride to said alkyl ether of 4:1 or more.

128. The method of claim 109 wherein said concentration of aluminum chloride produces a ratio of said aluminum chloride to said alkyl ether of 4:1 or more.

129. The method of claim 110 wherein said concentration of aluminum chloride produces a ratio of said aluminum chloride to said alkyl ether of 4:1 or more.

130. The method of claim 113 wherein said concentration of aluminum chloride produces a ratio of said aluminum chloride to said alkyl ether of 4:1 or more.

131. The method of claim 116 wherein said concentration of aluminum chloride produces a ratio of said aluminum chloride to said alkyl ether of 4:1 or more.

132. The method of claim 121 wherein said concentration of aluminum chloride produces a ratio of said aluminum chloride to said alkyl ether of 4:1 or more.

133. A method for making platform molecules comprising:

reacting 4-alkoxy benzoyl chloride with a hydroquinone comprising a desired substituent (R^2) under first conditions comprising a solution comprising a hydrogen chloride scavenging agent effective to produce bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene comprising bis terminal alkoxy groups;

wherein, when both of said bis terminal alkoxy groups are converted to polymerizable groups, R^2 provides sufficient steric hindrance to achieve a nematic state at room temperature while suppressing crystallinity at room temperature;

subjecting said 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene to second conditions effective to cleave said bis terminal alkoxy groups, thereby producing a solution comprising diphenolic platform molecules comprising bis terminal hydroxyl groups, said second conditions comprising an amount of chlorinated solvent comprising at least one mole of thiol per mole of methyl ether and comprising a concentration of aluminum chloride at a molar ratio of 4:1 or more to said methyl ether, said exposing occurring at a temperature and for a time effective to selectively cleave said bis terminal alkoxy groups to produce complexes comprising said diphenolic platform molecules comprising intact aromatic ester bonds and to cause said complexes to precipitate out of said solution substantially as they are formed, said chlorinated solvent being present in an amount effective to maintain said precipitate in slurry form.

134. The method of claim 133 further comprising quenching said precipitate.

135. The method of claim 133 wherein said amount of chlorinated solvent comprises a molar excess of from about 3 to about 7 relative to said ethane thiol.

136. The method of claim 133 wherein said amount of chlorinated solvent comprises a molar excess of 5 or more relative to said ethane thiol.

137. The method of claim 134 wherein said amount of chlorinated solvent comprises a molar excess of from about 3 to about 7 relative to said ethane thiol.

138. The method of claim 134 wherein said amount of chlorinated solvent comprises a molar excess of 5 or more relative to said ethane thiol.

139. The method of claim 133 wherein said temperature comprises an initial temperature of about 0 °C.

140. The method of claim 134 wherein said temperature comprises an initial temperature of about 0 °C.

141. The method of claim 135 wherein said temperature comprises an initial temperature of about 0 °C.

142. The method of claim 136 wherein said temperature comprises an initial temperature of about 0 °C.

143. The method of claim 137 wherein said temperature comprises an initial temperature of about 0 °C.

144. The method of claim 138 wherein said temperature comprises an initial temperature of about 0 °C.

145. The method of claim 133 wherein said chlorinated solvent is methylene chloride.

146. The method of claim 134 wherein said chlorinated solvent is methylene chloride.

147. The method of claim 138 wherein said chlorinated solvent is methylene chloride.

148. The method of claim 144 wherein said chlorinated solvent is methylene chloride.

149. The method of claim 133 wherein R^2 is selected from the group consisting of methyl groups and t-butyl groups.

150. The method of claim 133 wherein

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene comprising bis terminal alkoxy groups is to be incorporated into a monomer, R^2 is selected from the group consisting of t-butyl groups, isopropyl groups, secondary butyl groups, methyl groups, and phenyl groups; and,

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene is to be incorporated into a dimer, R^2 is selected from the group consisting of bulky organic groups and groups having a bulk less than methyl groups.

151. The method of claim 134 wherein R^2 is selected from the group consisting of methyl groups and t-butyl groups.

152. The method of claim 134 wherein

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene comprising bis terminal alkoxy groups is to be incorporated into a monomer, R^2 is selected from the group consisting of t-butyl groups, isopropyl groups, secondary butyl groups, methyl groups, and phenyl groups; and,

when said bis 1,4 [4-alkoxybenzoyloxy]-R^2-phenylene is to be incorporated into a dimer, R^2 is selected from the group consisting of bulky organic groups and groups having a bulk less than methyl groups.

153. The method of claim 1 wherein said first terminal functionality and said second terminal functionality are independently selected from the group consisting of polymerizable groups, hydroxyl groups, amino groups, sulfhydryl groups, halogen atoms, H-$(CH_2)_n$-O- groups, Cl$(CH_2)_n$-O- groups, Br$(CH_2)_n$-O- groups, I$(CH_2)_n$-O-, wherein n is from about 2 to about 12 and CH_2 independently can be substituted by oxygen, sulfur, or an ester group; provided that at least 2 carbon atoms separate said oxygen or said ester group.

154. The method of claim 3 wherein said first terminal functionality and said second terminal functionality are independently selected from the group consisting of polymerizable groups, hydroxyl groups, amino groups, sulfhydryl groups, halogen atoms, $H-(CH_2)_n-O-$ groups, $Cl(CH_2)_n-O-$ groups, $Br(CH_2)_n-O-$ groups, $I(CH_2)_n-O-$, wherein n is from about 2 to about 12 and CH_2 independently can be substituted by oxygen, sulfur, or an ester group; provided that at least 2 carbon atoms separate said oxygen or said ester group.

155. The method of claim 27 wherein said first terminal functionality and said second terminal functionality are independently selected from the group consisting of polymerizable groups, hydroxyl groups, amino groups, sulfhydryl groups, halogen atoms, $H-(CH_2)_n-O-$ groups,, $Cl(CH_2)_n-O-$ groups, $Br(CH_2)_n-O-$ groups, $I(CH_2)_n-O-$, wherein n is from about 2 to about 12 and CH_2 independently can be substituted by oxygen, sulfur, or an ester group; provided that at least 2 carbon atoms separate said oxygen or said ester group.

156. The method of claim 28 wherein said first terminal functionality and said second terminal functionality are independently selected from the group consisting of polymerizable groups, hydroxyl groups, amino groups, sulfhydryl groups, halogen atoms, $H-(CH_2)_n-O-$ groups, $Cl(CH_2)_n-O-$ groups, $Br(CH_2)_n-O-$ groups, $I(CH2)_n-O-$, wherein n is from about 2 to about 12 and CH_2 independently can be substituted by oxygen, sulfur, or an ester group; provided that at least 2 carbon atoms separate said oxygen or said ester group.